

Remarks/Arguments

Upon entry of the foregoing amendments, claims 26 and 29 to 46 will be pending in this patent application. Claims 1 to 25, 27 and 28 have been canceled, without prejudice. Claim 26 has been amended, without prejudice. Support for the amendment to claim 26 is found, for example, in original claims 27 and 28. Claims 29 to 46 are new. Support for new claims 29 to 46 is found throughout Applicants' specification such as, for example, page 1, paragraph [003]; page 15, paragraph [0031]; and original claims 24, 25 and 18. No new matter has been added.

Applicants' disclosure has been amended to correct several typographical errors. Regarding the amendment to paragraph [0019], structure II has been amended such that the propylene oxide repeating units are more clearly defined. Support for these amendments is found throughout Applicants' specification such as, for example, at page 9, paragraph [0020], which clearly indicate that propylene oxide "(PO)" is the intended repeating unit.

The Action includes rejections under 35 U.S.C. §§ 112, second paragraph, 102(e) and 103(a), as well as under the judicially created doctrine of obviousness-type double patenting. In view of the following remarks, reconsideration and withdrawal of the rejections are requested respectfully.

Discussion of the Species Election Requirement

The Species Election

The Action alleges that claims 1, 18 and 27 are generic and that each of the "additive" species disclosed therein are "patentably distinct" (Action at 2). Applicants **affirm** the election of the "alkyl alcohol or a polymeric alcohol having one or more hydroxyl groups" species made by Applicants' representative, Mr. Geoffrey Chase, with traverse.

Reason for Traversal

Applicants respectfully traverse this species election requirement. For a restriction requirement to be proper, the Examiner must show that a serious burden exists if the claims of Groups I and II are examined together. M.P.E.P. § 803 (8th ed., August 2001). In this regard, the Action has provided ***no evidence*** or reasoning to show that the requisite serious burden exists. Accordingly, reconsideration and withdrawal of the species election requirement are requested respectfully.

Discussion of Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 1, 2, 18 to 25 and 27 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as their invention. Although Applicants disagree respectfully that the claims are unclear, Applicants submit that the foregoing amendments address the concerns raised in the Action, thus rendering the rejection moot. Accordingly, reconsideration and withdrawal of the rejection is requested respectfully.

Discussion of the Double Patenting Rejections

Claims 1, 2 and 18 to 28 have been rejected provisionally under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1, 2 and 20 to 30 of co-pending Application No. 11/030,132 ("the 132 application"). Although Applicants disagree that the claims of the 132 application render the present claims obvious, Applicants request that this provisional rejection be deferred pending some identification of allowable subject matter, as it likely can be readily resolved (depending upon the subject matter ultimately allowed) through the filing of a suitable terminal disclaimer.

Claims 1, 18 to 24, 26 and 27 have been rejected provisionally under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over

claims 1, 13 and 17 to 32 of co-pending Application No. 10/804,513 ("the 513 application"). Although Applicants disagree that the claims of the 513 application render the present claims obvious, Applicants request that this provisional rejection be deferred pending some identification of allowable subject matter, as it likely can be readily resolved (depending upon the subject matter ultimately allowed) through the filing of a suitable terminal disclaimer.

Discussion of the Rejections Under 35 U.S.C. §§ 102(e) and 103(a)

Claims 1 and 2 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 7,029,832 to Rolland ("the Rolland patent"). Without commenting on the merits of the rejection, Applicants submit respectfully that this rejection is moot in view of the foregoing amendments.

Claims 18 to 27 have also been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by the Rolland patent or, in the alternative, under 35 U.S.C. § 103(a) as allegedly unpatentable over the Rolland patent. Applicants respectfully traverse this rejection as the Rolland patent does not disclose nor suggest each and every element of the invention defined by claims 26 and 29 to 37.

Claim 26 as amended defines an immersion fluid composition having a transmission of 80% or greater at an operating wavelength ranging from 140 nm to 248 nm comprising at least one carrier medium selected from the group consisting of ***citric acid, bicyclohexyl, glycerol, and cis-2-methylcyclohexanol***; and from 10 ppm to a maximum solubility limit of at least one additive as recited therein (notwithstanding the pending species election requirement).

Method claim 29 defines a method of forming a pattern on a substrate coated with a layer of photoresist, the method comprising the steps of introducing a fluid between the layer of photoresist on the substrate and a lens having an operating wavelength ranging from 140

nm to 248 nm, wherein the fluid comprises: at least one carrier medium selected from the group consisting of an aqueous fluid, a non-aqueous fluid, and mixtures thereof wherein the at least one carrier medium has a refractive index greater than or equal to water at the operating wavelength; and about 10 ppm to a maximum solubility limit of at least one additive selected from an alkyl alcohol or a polymeric alcohol having one or more hydroxyl groups; and exposing the layer of the photoresist on the substrate through the fluid to form a pattern upon the photoresist.

The Rolland patent teaches that immersion lithography can be performed on a photoresist layer on a substrate by providing an immersion layer on the photoresist layer, imaging the photoresist layer through the immersion layer, removing the immersion layer from the photoresist layer, developing the photoresist layer from which the immersion layer has been removed, drying the photoresist layer from which the immersion layer has been removed, patterning the substrate using the photoresist layer that has been developed and removing the photoresist layer from the substrate that has been patterned. The Rolland patent discloses that one or more of the steps of providing an immersion layer, removing the immersion layer, developing the photoresist layer, drying the photoresist layer and removing the photoresist layer is performed using **carbon dioxide**.

Although the Rolland patent provides compositions that comprise various non-aqueous compositions for use as immersion fluids (col. 6, lines 48 to 59) and for rinsing immersion layers (*see, e.g.*, col. 8, lines 12 to 63), the Rolland patent does not teach or suggest the composition defined by amended claim 26, nor does it teach or suggest the methods defined by claims 29 to 37. Accordingly, reconsideration and withdrawal of the rejection are requested respectfully.

Claims 1 and 2 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. patent application Publication No. 2004/0144399 to McDermott ("the

McDermott publication"). Without commenting on the merits of the rejection, Applicants submit respectfully that this rejection is moot in view of the foregoing amendments.

Claims 18 to 27 have also been rejected under 35 U.S.C. § 102(3) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as unpatentable over the McDermott publication. Applicants respectfully disagree with the rejection as the McDermott publication is incapable of anticipating or rendering obvious the invention as defined by amended claim 26 and claims 29 to 37.

Claim 26 as amended defines an immersion fluid composition having a transmission of 80% or greater at an operating wavelength ranging from 140 nm to 248 nm comprising at least one carrier medium selected from the group consisting of ***citric acid, bicyclohexyl, glycerol, and cis-2-methylcyclohexanol***; and from 10 ppm to a maximum solubility limit of at least one additive as recited therein (notwithstanding the pending species election requirement).

Method claim 29 defines a method of forming a pattern on a substrate coated with a layer of photoresist, the method comprising the steps of introducing a fluid between the layer of photoresist on the substrate and a lens having an operating wavelength ranging from 140 nm to 248 nm, wherein the fluid comprises: at least one carrier medium selected from the group consisting of an aqueous fluid, a non-aqueous fluid, and mixtures thereof wherein the at least one carrier medium has a refractive index greater than or equal to water at the operating wavelength; and about 10 ppm to a maximum solubility limit of at least one additive selected from an alkyl alcohol or a polymeric alcohol having one or more hydroxyl groups; and exposing the layer of the photoresist on the substrate through the fluid to form a pattern upon the photoresist.

The McDermott publication is directed to methods for processing an article with a dense processing fluid in a processing chamber while applying ultrasonic energy during

processing. According to the McDermott publication, the dense fluid may be generated in a separate pressurization vessel and transferred to the processing chamber, or alternatively may be generated directly in the processing chamber. The McDermott publication also teaches that a processing agent may be added to the pressurization vessel, to the processing chamber, or to the dense fluid during transfer from the pressurization vessel to the processing chamber (*see, e.g.,* Abstract).

In the first instance, Applicants submit respectfully that the Action has mischaracterized the McDermott publication as “teach[ing] a lithography method” (Action at 8). It does not. To the extent that McDermott uses the term “immersion,” such term is used in the context of submerging a component in a cleaning process (*see, the* McDermott publication at page 1, paragraph [0004]). Accordingly, the McDermott publication is indeed **incapable** of teaching or suggesting the invention defined by method claims 29 to 37.

Regarding amended composition claim 26, as amended, the McDermott publication does not teach or suggest the recited carrier medium (citric acid, bicyclohexyl, glycerol, and cis-2-methylcyclohexanol). The present specification defines a “carrier medium” as a fluid that may be used by itself or have at least one additive added thereto to provide an immersion fluid (*see* Applicants’ specification at page 4, lines 24 to 26). Thus, the “carrier medium” component of the claimed invention is capable of functioning alone as the immersion fluid.

Although the McDermott publication teaches that citric acid, for example, can be used as a “processing agent” (*id.* at page 12, paragraph [0148]) to be added to a dense fluid, the McDermott publication does not teach or suggest a composition comprising any of the recited “processing agents” **alone**, *i.e.*, without the dense fluids disclosed therein.

Accordingly, the McDermott publication does not disclose the claimed invention defined by amended composition claim 26.¹

Miscellaneous

Applicants note that the Action, at page 3, alleges that the IDS submitted on June 4, 2004 failed to comply with 37 C.F.R. § 1.98(a)(2), which requires a legible copy of each cited foreign patent document. Applicants have reviewed the file and note that legible copies of such references were submitted with the June 4, 2004 IDS. Nevertheless, to ensure that such references are considered by the Examiner, another IDS is submitted concurrently with this Reply.

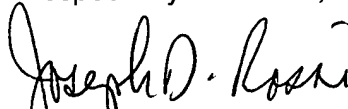
¹ Applicants reserve the right to provide evidence that 35 U.S.C. § 103(c) precludes the use of the McDermott publication in the context of a rejection under 35 U.S.C. § 103(a), should the rejection be maintained.

Conclusion

Applicants believe that the foregoing constitutes a complete and full response to the Action of record. Applicants respectfully submit that this application is now in condition for allowance. Accordingly, an indication of allowability and an early Notice of Allowance are respectfully requested.

The Commissioner is hereby authorized to charge the fee required and any additional fees that may be needed to Deposit Account No. 01-0493 in the name of Air Products and Chemicals, Inc.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Joseph D. Rossi". The signature is fluid and cursive, with the first name "Joseph" and last name "Rossi" clearly distinguishable.

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